

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR2004/001821

**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 F16L 21/06**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC as above

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KR, JP: as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

New Patent and Utility Model Search System(KIPO): packing, coupling, seal, connect, groove, clamp

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,450,551 B1 (Sep. 17, 2002) (17.09.2002) Figs. 1 -5.	1, 3, 4
A	EP 0 987 484.A2 (Aug. 12, 1999) (12.08.1999) Figs. 1 - 4	1
A	KR 20-0277297 (Jun. 1, 2002) (01.06.2002) Fig. 1 -3	1
A	US 4,603,885 A (Aug. 5, 1986) (05.08.1986) Fig. 1	1

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

03 NOVEMBER 2004 (03.11.2004)

Date of mailing of the international search report

**03 NOVEMBER 2004 (03.11.2004)**

Name and mailing address of the ISA/KR



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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/KR2004/001821

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6,450,551 B1	17.09.2002	None	
EP 0 987 484 A2	12.08.1999	None	
KR 20-0277297 U	01.06.2002	None	
US 4,603,885 A	05.08.1986	US4488346A BR8207747A CA1198753A1 EP0081579A1 JP58501005T NO830487A OA7326A US4488346A WO8300061A1	18.12.1984 10.05.1983 31.12.1985 22.06.1983 23.06.1983 14.02.1983 31.08.1984 18.12.1984 06.01.1983